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(54) **PROCEDE D'HYGIENE PERSONNELLE SYNERGIQUE**
(54) **SYNERGISTIC PERSONAL HYGIENE PROCESS**

(57) On décrit un procédé d'hygiène personnelle synergique, le procedé comprenant les étapes consistant à combiner une composition cosmétique nettoyante avec un véhicule d'application, la composition cosmétique nettoyante comprenant : (i) de 7 à 35 % en poids, par rapport au poids total de la composition, d'un ou de plusieurs surfactants anioniques, amphotères ou non ioniques sensibles à l'épaississement par électrolyte, ou des mélanges de ces derniers, (ii) de 2 à 25 % en poids d'électrolyte, (iii) jusqu'à 25 % en poids d'additifs actifs, (iv) de l'eau. Une composition cosmétique nettoyante telle que décrite dans le procédé est également offerte tout comme un produit d'hygiène personnelle comprenant ledit produit cosmétique nettoyant en combinaison avec un véhicule d'application.

(57) A synergistic personal hygiene process is provided the process comprising the steps of combining a cosmetic cleansing composition with an application vehicle, the cosmetic cleansing composition comprising; (i) from 7% to 35% by weight, based on the total weight of the composition, of one or more anionic, amphoteric or nonionic surfactants sensitive to thickening by electrolyte, or mixtures thereof, (ii) from 2% to 25% by weight of electrolyte, (iii) up to 25% by weight of active additives, (iv) water, (iv) water, A cosmetic cleansing composition as described in the process is also provided as is a personal hygiene product comprising said cosmetic cleansing in conjunction with an application vehicle.

ABSTRACT:

A synergistic personal hygiene process is provided the process comprising the steps of combining a cosmetic cleansing composition with an application vehicle, the cosmetic cleansing composition comprising;

(i) from 7% to 35% by weight, based on the total weight of the composition, of one or more anionic, amphoteric or nonionic surfactants sensitive to thickening by electrolyte, or mixtures thereof,

(ii) from 2% to 25% by weight of electrolyte,

(iii) up to 25% by weight of active additives,

(iv) water.

(iv) water.

A cosmetic cleansing composition as described in the process is also provided as is a personal hygiene product comprising said cosmetic cleansing in conjunction with an application vehicle.

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SYNERGISTIC PERSONAL HYGIENE PROCESS

The present invention relates to a synergistic personal hygiene process which provides for a process comprising combining a novel liquid composition, preferably a cosmetic cleansing composition, with an application vehicle to produce a personal hygiene product. The cosmetic cleansing composition thickens upon dilution whereby the performance of the personal hygiene product is increased. The invention further relates to such cosmetic cleansing compositions.

The viscosity of the novel liquid composition is increased in a water environment and this is especially beneficial when used in combination with an application vehicle. It is believed that this increase in viscosity, during use is responsible for the improved performance of the product.

Over recent years the hygiene and personal cleanliness product market has shifted away from bar soaps towards a more modern and sophisticated approach, namely, liquid soap products. This tendency, originally observed in the European, American and Japanese markets, is being followed in other countries and on other continents.

The present liquid soap products have associated drawbacks, such as cost, yield to the consumer upon use, or even consumer recognition in comparison with bar soaps. What is meant by yield to the consumer upon use is the amount of product functionally available and not that which is removed before the consumer has been able to make use of the product.

One of the drawbacks of the conventional liquid soaps is the high waste factor caused by the liquid soap product slipping between the fingers, or, being partially washed or rinsed away when used with sponges before the consumer has had time to use it . This

is believed to be due to the low viscosity of the product. In this way, a significant part of the product is thrown away before it can exercise its function. This "loss" means that greater quantities of the product are required with a consequent impact on the cost/benefit as perceived by the consumer. It also results in greater detrimental influence upon the environment caused by unnecessary effluence and an exaggerated consumption of raw materials.

EP 254 653 (Cotelle S.A. and Henkel) refers to thickening concentrates upon dilution and discloses compositions which are thickened with excess NaCl.

WO 93/03129 (Unilever) discloses a concentrated liquid for light duty washing which contains a mixture of anionic and nonionic surfactant agents; a solvent, and an alkanodiol with 3 to 6 carbon atoms as a hydrotrope.

WO 93/08247 (Chlorox) discloses AES based systems thickened by adding a suitable amount of electrolyte.

EP 574 086 (Colgate) discloses how the proportion of salt in a composition affects viscosity.

WO 95/02664 (Jeyes Group) discloses a liquid concentrate which, when diluted in water, produces a thickened product. The concentrate contains (a) an ether alkyl-sulphate, (b) optional components such as anionic, nonionic or amphoteric surfactants, (c) an optional cationic surfactant either alone or in combination with a nonionic surfactant agent; and, (d) an electrolyte or hydrotrope.

Patent application PI 9503351-3 (Unilever N.V.) discloses a method for handwashing dishes exclusively for use as a domestic sanitation agent, including the phase of treating an absorption vehicle with a surfactant agent which thickens when water is added.

Patent application PI 9501520-6 (Unilever N.V.) discloses a detergent compound, based on sodium-ether-lauryl sulphate, lauryl sulphate, amphoteric surfactant, electrolytes and hydrotropes.

WO 95/00116 (The Procter & Gamble Co.) discloses a personal hygiene system which uses a specific polymer sponge together with a liquid personal hygiene composition composed of skin conditioners, hydration creams and surfactant agents. This invention is aimed exclusively at the function known as "2 in 1" (combined cleansing and hydrating) in conjunction with a special sponge in personal bathing.

A possible solution to the situation described above may be to produce compositions with greater viscosity but this would make the product harder to remove from the soap dispensers as viscosity tends to keep the product inside the dispensers. Production of high viscosity compositions would also typically require installation of suitable industrial facilities, since conventional liquid product lines do not have agitation and/or bottling systems which are suitable for high viscosity products.

The state of the art does not disclose the existence of any personal hygiene systems, associated with application vehicles such as sponges which unite the above properties to maximise the yield of usable products through the use of the synergistic process of the present invention.

The present invention is accordingly directed towards overcoming the problems outlined above.

According to a first aspect the present invention provides a synergistic personal hygiene process comprising the steps of combining a cosmetic cleansing composition with an application vehicle, the cosmetic cleansing composition comprising;

(i) from 7% to 35% by weight based on the total weight of the composition of one or more anionic, amphoteric or nonionic surfactants sensitive to thickening by electrolyte, or mixtures thereof,

(ii) from 2% to 25% by weight of electrolyte,

(iii) up to 25% by weight of active additives,

(iv) water.

According to a second aspect the present invention provides a cosmetic cleansing composition as described in the first aspect.

According to a third aspect the present invention provides a personal hygiene product comprising a cosmetic cleansing composition as described in the first aspect in conjunction with an application vehicle as described in the second aspect.

The novel liquid compositions have the feature of increasing viscosity during use, when applied synergetically with a special application vehicle and in the presence of water. This increases the composition's tendency to remain in the vehicle, thus increasing the yield available for the consumer to use and providing an increased cost/benefit ratio. It also avoids unnecessary impact on the environment and additional capital investment on the production line.

Furthermore, it has been found that in certain ranges of electrolyte concentration excellent viscosity results may be obtained consequently giving a greater yield of product during use to the consumer.

The benefits of this technology may be explored to an even greater extent when used with compositions which, as well as components necessary for hygiene and cleanliness, contain active additives responsible for hydration, nutrition, softening, protection and revitalisation. As the compositions of the present invention increase in viscosity during use the active ingredients are retained for a greater time in the application vehicle and are released gradually so that they may fully perform their function without a significant amount of waste.

Typically, the personal hygiene composition of the present invention contains surfactants, electrolytes, active ingredients and water. Optionally, conserving (preserving) agents, thickening agent, hydrotropes and promotional components may be added.

A range of raw materials for the categories mentioned above are available to, and known to, those skilled in the art who will chose among such raw materials in view of the objectives, aims and physical and chemical properties required of the product. For example cost, yield, targeted skin type (oily, dry, sensitive or mixed), ease of application, rinsing ease, detergency, foam generation, smoothness requirements, stability and conservation (preservation) additional cosmetic benefits (e.g. hydration, nutrition, protection, etc.) amongst others would be considered by the skilled man when formulating the personal hygiene composition.

The compositions of the invention should contain at least one surfactant sensitive to electrolyte thickening.

Anionic, amphoteric, nonionic surfactant or mixtures thereof may be used according to the present invention. The anionic surfactants which are suitable for use according to the present invention include alkyl sulphates, ether alkyl-sulphates, alpha olefin sulphonate, sulphosuccinates, soaps, N-acyl sarconsinates, N-acyl glutamates, N-acyl polypeptide condensates, acyl isethionates, N-acyl methyl taurates, alkyl benzene sulphonates, alcohol sulphates and phosphate esters amongst others.

Preferred examples of anionic surfactants are sodium lauryl sulphate, triethanolamine lauryl sulphate, ammonium lauryl sulphate, ammonium ether lauryl sulphate, sodium ether lauryl sulphate, soap, sodium xylene sulphate, sodium sulphosuccinate, sodium olefin, C_{14}-C_{16} sulphonate, MEA disodium cocoamido sulphosuccinate, sodium benzene sulphonate, sodium cocyl isethionate amongst others.

The anionic surfactant preferably includes an ether alkyl sulphate of general formula (I);

$$R\text{-}O\text{-}(CH_2\text{-}CH_2O)_n\ SO_3\text{-} \qquad (I)$$

wherein

N is 1 to 5 and R is $C_{8\text{-}18}$. R is preferably C_{12}.

The amphoteric surfactants which may be used according to the present invention include alkyl glycinates and propionates, carboxy glycinates, alkyl betaines, alkyl imidazolines sulpho betaines, alkyl polyamino carboxylates, alkyl-amino/imino-propionates and poly ampho carboxy-glycinates, amongst others. Preferred examples of amphoteric surfactants are coco-amido-propyl-betaine, sodium-coco-amphocarboxy-glycinate, coco-amido, sulpho betaine, coco-ethoxylated MEA, and alkyl-dimethyl-betaine amongst others.

The preferred amphoteric surfactants are alkyl-amido-propyl-betaines of general formula (II);

$$R\text{-}CO\text{-}NH\text{-}(CH_2)_3\text{-}N^+(CH_3)_2\text{-}CH_2COO^- \qquad (II)$$

wherein R has the same meaning as in formula (I).

It is especially preferred that the alkyl-amido propyl-betaine is coco-amido-propyl-betaine wherein R is a chain of coco fatty acid with 12 carbon atoms.

The nonionic surfactants which may be used according to the present invention include the polyalkoxylated fatty alcohols and acids and their esters, alkanolamides, polyalkoxylated and ethoxylated alkanolamides, glycosides and alkyl-polyglycosides,

and long chain ethoxylated amines, alkyl-amines, amine oxides, polysorbate, nonoxinols, and polyoximers amongst others.

Preferred examples of nonionic surfactants include polysorbate 20, nonoxinol-12, polyethylene-24-lauric acid, coco MEA, and cetyl isooctanoate, amongst others.

The nonionic surfactants are, preferably, the amino oxides of general formula (III);

$$R^1R^2R^3\text{-}NO$$

wherein

R^1 is a $C_{8\text{-}20}$ alkyl group and R^2 and R^3 are $C_{1\text{-}4}$ chain alkyls.

The typical concentration of surfactant in the compositions of the present invention lies between 7%, 35% by weight based upon the total weight of the composition, preferably between 8% and 20% by weight, most preferably between 10% and 15% by weight.

Among the electrolytes (organic and inorganic) which may be used in accordance with the invention are halides of alkaline metals, alkaline earth metals, ammonium and other metals, such as aluminium and zinc; sulphates and phosphates of alkaline metals, alkaline earth metals, ammonium and other metals such as aluminium and zinc; MEA and DEA salts, and alkaline metal silicates, amongst others.

Preferred examples of electrolytes used according to the present invention are; sodium chloride, potassium chloride, sodium sulphate, potassium sulphate, magnesium chloride, magnesium sulphate, ammonium chloride and MEA chloride amongst others.

The preferred concentration for electrolytes in this invention lies between 2% and 25% by weight, preferably between 5% and 15% by weight based on the total weight of the composition.

Active additives may also be included to provide complimentary benefits to skin cleansing, such as hydration, nutrition, softness, protection and revitalisation amongst others. There is a vast range of suitable raw materials available, which may be included and which are known to the man skilled in the art.

Examples of the active ingredients which may be included are; glycerin, sorbitol, polyols, vitimins, alpha hydroxy acids such as glycolic acid, isopropyl myristate, UV filters such as benzophenone-4 and octyl dimethylpaba, fatty acids and their esters, silicones, amino acids, hydrolysed animal proteins, cationic surfactants, essential oils, animal, vegetable and mineral oils, steroids, quaternium compounds such as quaternium-22, quaternized polymers such as poly quaternium-23, and bactericides such as Irgasan, amongst others.

The concentration for active ingredients in the composition of the invention may be up to 25% by weight, preferably 0.001% to 10% by weight based on the total weight of the composition.

The following optional preservatives may be used in the invention; aldehydes, amides, esters, phenyls, quaternary ammonium compounds, thio compounds, acids amongst others. Examples of the preferred optional ingredients will now be given below.

Examples of the preferred preservatives which may be used in composition of the present invention are; imidazolyldinil urea, EHDP, BDTA, BHT, formaldehyde, methyl-propyl parabenes, benzalconic chloride, sodium hypochlorite, DMDM hydantoin, quaternium-15, sorbic acid amongst others.

Typically the preservative concentration lies between 0% and 2% by weight.

Hydrotropes may optionally be used in the compositions of the present invention and examples include aicohols, polyols and short chain alkyl aryl-sulphonates amongst others. The preferred hydrotropes are ethanol, glycerol and sulphonic xylene.

The concentration for hydrotropes typically lies between 0% and 10% by weight, preferably between 2% and 6% by weight.

Examples of thickening agents that may be used in the compositions of the present invention are biological and synthetic polymers, carbohydrates, glyceril esters, gums, hydrophilic colloids, and polymeric ethers with high molecular weight, amongst others.

Preferred thickening agents include: hydroxy-ethyl-cellulose, vinyl-carboxy-polymer, polyethylene glycols, and guar gum, amongst others.

Typically the thickening agents are present in an amount of between 0% and 3% by weight, preferably between 01% and 1% by weight.

Promotional ingredients aimed to define the specific sensory properties of the final product may be included in the compositions of the present invention.

Examples of promotional components include: natural and/or synthetic perfumes, filters, dyes, sterilising agents, opaque agents, acidic and basic agents for adjusting pH amongst others.

The concentration of promotional components in the invention may vary between 0% and 3% by weight.

Water is typically used as the component to make up the weight of the composition to 100%. Preferably de-ionised or distilled water is used.

A large number of conventional natural or synthetic, porous and/or fibrous or similar vehicles may be used according to the present invention. These vehicles include natural or synthetic sponges, towels, woven and/or non-woven cloths, a combination of the above materials, or any other suitable vehicle for promoting the thickening effect of the product for the present invention, when said product is placed in contact with water.

The results of technical and comparative tests are duly plotted in the graph and tables given in the figures of the present application.

The present invention will now be further described with reference to the following examples. The examples are not intended to limit the scope of the invention and further modifications within the scope of the present invention will be obvious to the man skilled in the art.

Examples

Tests and comparisons to exemplify the product of the present invention were carried out using a number of variations for the composition of the present invention with a range of application vehicles employed.

An example of an application vehicle is the "SP500 body sponge net" made by the Sponge Factory SA. This sponge is made of low density polyethylene, ethylene vinyl acetate and dye.

Example 1

A number of technical tests were carried out using the composition below:

Ingredients	% by weight										
Composition	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**
Sodium ether lauryl sulphate (SELS)	10	10	10	10	10	10	10	10	10	10	10
Coco amido propyl betaine (CAPB)	2	2	2	2	2	2	2	2	2	2	2
Silicone	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Jaguar C13S (quaternised guar gum)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Formaldehyde	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Butylene hydroxytoluene (BHT)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
NaCl	2	2.5	3	3.5	4	4.5	5	5.5	6.5	8.5	10
Water	to 100%	to 100%	to 100%	to 100%	to 100%	to 100%	to 100%	to 100%	to 100%	to 100%	to 100%

The effect of the electrolytic concentration (NaCl) on the viscosity of the composition was investigated and the results are plotted in the graph shown in Figures 1 and 2.

The viscosity of the compositions of Example 1 was measured by two different viscometers; Brookfield (see Figure 1) and Haake (see Figure 2). With the gradual increase in the concentration of the sodium chloride, the viscosity of the compositions reaches a peak with a certain electrolyte concentration (5.5% by weight of sodium chloride with the Brookfield and 7% by weight with the Haake), after which the viscosity begins to fall. This is a known phenomenon.

However, it can be observed that the reverse is also true, and a liquid composition containing excess electrolyte (i.e. which lies on a point after the peak on the graph in Figures 1 and 2) which is diluted with a known quantity of water, exhibits reversed behaviour and the viscosity increases up to a certain point of dilution before falling off.

This is illustrated by the results shown in the graph in Figure 3, where a composition with 9.5% by weight of sodium chloride was diluted to the following proportions of composition:water: 100:1, 90:10, 80:20, 70:30, 60:40 and 50:50. The viscosity of each dilution was measured on a Brookfield viscometer.

The composition in Figure 3 reaches its peak of thickening with the 70:30 dilution ratio.

When using this novel composition with a vehicle, such a sponge, the product will thicken up in the sponge cavities and so be retained therein for a longer period. Thus the composition will be delivered in higher amounts to the user than conventional products which are much more easily rinsed away before being properly used by the consumer.

The low electrolytic concentration of state of the art liquid soap products causes their viscosity values to appear before the peak on the viscosity curve (see Figures 1 and 2), that is, on the positive slope appearing on the rising section of the graph. They do not show the beneficial effects of the present compositions which lie on the concentration

range just after the peak on the graph i.e. on the negative slope appearing on th falling section of th graph.

Using the above data two tests were designed to evaluate the performance of the present compositions compared to that of the state of the art products. These tests are given in Examples 2 and 3. The performance of the compositions of the present invention and those of the prior art for retaining liquid in the sponge and also the rinsing capacity was tested.

Example 2

The potential for retaining the liquid compositions within the sponge was measured for both a composition as according to the present invention and a composition representing the state of the art product. The test were carried out with a composition of Example 1 comprising 9.5% by weight of Sodium Chloride (i.e. it is within the concentration range located after the peak in Figures 1 and 2).

The other composition was a state of the art composition which had an electrolytic concentration of 3% by weight sodium chloride (i.e. it is within the concentration range located before the peak of the graph in Figures 1 and 2).

The retaining potential is shown by the number of glasses or beakers required for complete rinsing of the product from the sponge application vehicle. Complete rinsing is obtained when no more foam is formed. From the tests the yield of the product delivered to the consumer over time is illustrated. The following test method was used to assess the potential for the liquid to be retained in the sponge.

Method

1. 200ml of water at 40°C (or 25°C) was poured into a series of six 1000ml glass beakers. The sponge vehicle was soaked in the water, removed and shaken to release the maximum quantity of water so as to leave the sponge merely damp.

2. 3g of the product to be tested was weighed and placed on the sponge on the side opposite a strap. The sponge was then held by the strap, placed in the first 1000ml glass beaker and plunged in the water ten times. The sponge was then squeezed by hand with the water and suds so released caught in the first beaker.

3. This procedure was repeated using a new 1000ml glass beaker until the sponge became completely rinsed and released no foam.

4. The volumetric amount of foam in each beaker was measured and the number of beakers taken until no more suds were formed was recorded.

5. In order to check the accuracy of the above test method the full procedure was repeated five more times until the measurements showed variations of less than 50ml of foam.

Results

The results of the above test methods are shown in Figures 4, 5, 6 and 7.

Figures 4 and 5 show the results of the composition of the present invention (comprising 9.5% sodium chloride) in comparison with the prior art composition (comprising 3% sodium chloride). Results at 40°C (Figure 5) and 25°C (Figure 6) are given.

Figures 6 and 7 compare the behaviour of the two compositions at both 25°C and 40°C respectively.

For the state of the art composition which comprises 3% sodium chloride, a lower volumetric reading for the average total foam was noted compared with the average total foam recorded for the compositions of the present invention (comprising 9.5% sodium chloride).

The prior art composition produced 945ml of foam compared with 1085ml of foam produced by the composition of the present invention when measured at 40°C; this represents an increase of 12.9%.

The prior art compositions produced a total volumetric average of foam of 745ml compared with 995ml of foam produced by the compositions of the present invention when measured at 25°C; this represents an increase of 25.1%.

On average the compositions of the present invention yield 19% more foam, taken over the temperature range of 25°C to 40°C.

The results illustrate that the compositions according to the present invention, when used with a sponge application vehicle, provide a better yield of product to the consumer.

The product of the present invention is retained for a longer period in a sponge than that of the prior art compositions it is believed because the product of the present invention thickens in the cavities of the sponge when it comes into contact with water.

Example 3

The rinsing capacity of the composition of the present invention and the prior art as in Example 2 was tested using the following method.

Also tested wer prior art commercial products for body or skin hygienc as follows: Formula A (Brazil), Formula B (Brazil), Formula C (USA), Formula D (Brazil), Formula E (Germany), Formula F (Thailand), Formula G (China).

Method

1. 200ml of water, at 40°C was poured into a 1000ml beaker. A sponge as used in Example 2 was soaked in the water, removed, and shaken to release the maximum quantity of water so as to leave the sponge merely damp.

2. 3g of the product to be tested was weighed and placed onto the sponge on the side opposite the strap. The sponge was then held by the strap, placed in the beaker and moved backwards and forwards.

3. The sponge was held in both hands, squeezed five times whilst making opposing circular movements to drain the water from the sponge.

4. A further 20ml of water at 40°C was added and the sponge squeezed a further five times in the same way. This was repeated until the sponge was fully rinsed. The number of 20ml aliquots of water required to rinse the product from the sponge was recorded.

In order to check the accuracy of the above method the method was repeated three times, or until the results varied by less than 20ml of water.

The results of the rinsing capacity test are shown in Figures 8 to 11.

The composition of the present invention (with a higher electrolytic concentration) took longer to rinse than the others , with the former needing an average of 14.33 20ml

aliquots of water to provide complet rinsing. On average the prior art compositions required 10.33 20ml aliquots to provide sufficient rinsing.
As shown in Figure 8, when compared to the state of the art products, the product of the present invention yields 27.9% more in a terms of rinsing capacity.

All the products of the prior art share the same behaviour as that used the composition of Example 2 comprising 3.5% NaCl.

The compositions of the present invention are shown to provide a greater yield to the consumer than the state of the art compositions as the former take a longer time to rinse from the sponge. It can be appreciated that the product of the present invention has an increased viscosity and is retained for a longer period in the cavities of the sponge, is more difficult to rinse, and gives a greater yield and better performance than the prior art compositions.

Example 4

The preparation method for the compositions of the present invention may vary in relation to temperature, pressure, agitation methods, number of premixes, filtration, order and location for adding either premixtures or components etc.

An example of preparation of a composition of the present invention is given below.

The preparation of five tonnes of one of the preferred compositions of the present invention is described below.

1. 1851.85kg of sodium-ether-lauryl sulphate (25% active) was put into a 5 tonne tank with 651.56kg of water added under slow and constant agitation.

2 159kg of water was added to an auxiliary 200g tank with 5kg of Jaguar C13S and with a small amount of 49% aqueous sodium hydroxide (to aid the dissolution of the

Jaguar C13S and the adjust the pH of the water to above 10) slowly added under constant agitation.

3. The Jaguar C13S premix was added into the main tank and the resulting mixture agitated until completely homogenous.

4. 40kg of silicon (50% aqueous solution) was added to the main tank under mild agitation followed by 333.33kg of coco amido propyl betaine (30% aqueous solution) with the agitation continued until the mix is completely homogenous. 6.76kg formaldehyde (37%) was added to the main tank.

5. 50kg of perfume and 2.5kg of BHT were mixed until homogenous in an auxiliary 60kg tank.

6. The perfume/BHT mix was added to the main tank and agitated until a homogenous product resulted.

7. 1900kg of saline water (25% sodium chloride solution) was added to the homogenous product to adjust the viscosity. The saline solution was added quickly so as to avoid the high viscosity represented by the peaks of the graph shown in Figures 1 and 2.

Example 5

Another composition according to the present invention was prepared following the method given below.

1. 2922kg of LESS (20.7% active) were added into a main tank which was heated to 60°C with mild agitation.

2. 250kg of water was poured into a 350kg auxiliary tank and heated to 60°C with 9.6kg of carbopol added under constant agitation followed by 50kg of LESS (27% active) and the mixture agitated until all clots of carbopol had been dissolved. This solution was then added to the main tank.

3. 150kg of water was poured into a 350kg auxiliary tank and heated to 65°C. 144kg of ethylene glycol mono and distearate mix and 50kg of LESS were added to the water. Agitation was continued until the ethylene glycol mono and distearate dissolved. This mixture was then poured into the main tank and the product in the main tank agitated until it became homogenous.

4. 154.9kg of water was added into a 250kg auxiliary tank with 4.8kg of Jaguar C13S under constant agitation, again a little sodium hydroxide (49%) solution, was added to help dissolve the Jaguar and adjust the pH to greater than 10. The Jaguar C13S premix was added to the main tank followed by 240kg of silicon emulsion (50% active).

5.A premix of 48kg perfume, 6.3kg formaldehyde and 2.4kg of BHT was prepared in a 100kg auxiliary tank with the mixture agitated until the components were completely dissolved. When the temperature of the composition in the main tank had dropped to below 40°C the perfume/BHT/formaldehyde premix was added followed by 480kg of coco amido propyl betaine.

6. 288kg of saline solution was added to the main tank to increase the total weight of the composition up to 4800kg.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A synergistic personal hygiene process comprising the steps of combining a cosmetic cleansing composition with an application vehicle, the cosmetic cleansing composition comprising;

(i) from 7% to 35% by weight, based on the total weight of the composition, of one or more anionic, amphoteric or nonionic surfactants sensitive to thickening by electrolyte, or mixtures thereof,

(ii) from 2% to 25% by weight of electrolyte,

(iii) up to 25% by weight of active additives,

(iv) water.

2. A process according to claim 1 wherein the anionic surfactant is chosen from sodium lauryl sulphate, triethanolamine lauryl sulphate, ammonium lauryl sulphate, ammonium ether lauryl sulphate, sodium ether lauryl sulphate, soap, sodium xylene sulphate, sodium sulphosuccinate, sodium olefin, C_{14-16} sulphonate, disodium MEA cocoamido sulphosuccinate, sodium dodecyl benzene sulphonate and sodium cocyl isethionate.

3. A process according to claim 1 wherein the amphoteric surfactant is chosen from coco amido propyl betaine, sodium coco amphocarboxy-glycinate, coco amido-sulpho betaine, coco ethoxylated MEA and alkyl dimethyl betaine.

4. A process according to claim 1 wherein the nonionic surfactant is chosen from polysorbate 20, nonoxinol-12, polyoxyethylene-24-lauric acid, coco MEA and cetyl isooctanoate.

5. A process according to any preceding claim wherein the electrolyte is chosen from sodium chloride, potassium chloride, sodium sulphate, potassium sulphate, magnesium chloride, magnesium sulphate, ammonium chloride and MEA chloride.

6. A process according to any preceding claim wherein the activ ingredient is chosen from glycerin, sorbitol, vitamins, alpha-hydroxy acids, UV filters, silicones, amino acids, hydrolysed animal proteins, cationic surfactants, essential oils, animal vegetable or mineral oils, steroids, quaternium compounds, quaternized polymers and bactericides.

7. A process according to any preceding claim wherein the composition comprises up to 2% by weight of preservatives.

8. A process according to any preceding claim wherein the composition comprises up to 10% by weight of hydrotrope.

9. A process according to any preceding claim wherein the composition comprises up to 3% by weight of thickening agents.

10. A process according to claim 1 wherein the composition comprises up to 3% by weight of promotional components.

11. A process according to any preceding claim wherein the application vehicle is chosen from natural or synthetic sponges, towels, woven cloth, non-woven cloth, or a mixture thereof.

12. A cosmetic cleansing composition as described in any of the preceding claims.

13. A personal hygiene product comprising a cosmetic cleansing composition as described in any of the preceding claims in conjunction with an application vehicle as according to claim 11.

14. A synergistic personal hygiene process as claimed in claim 1 and substantially as described herein.

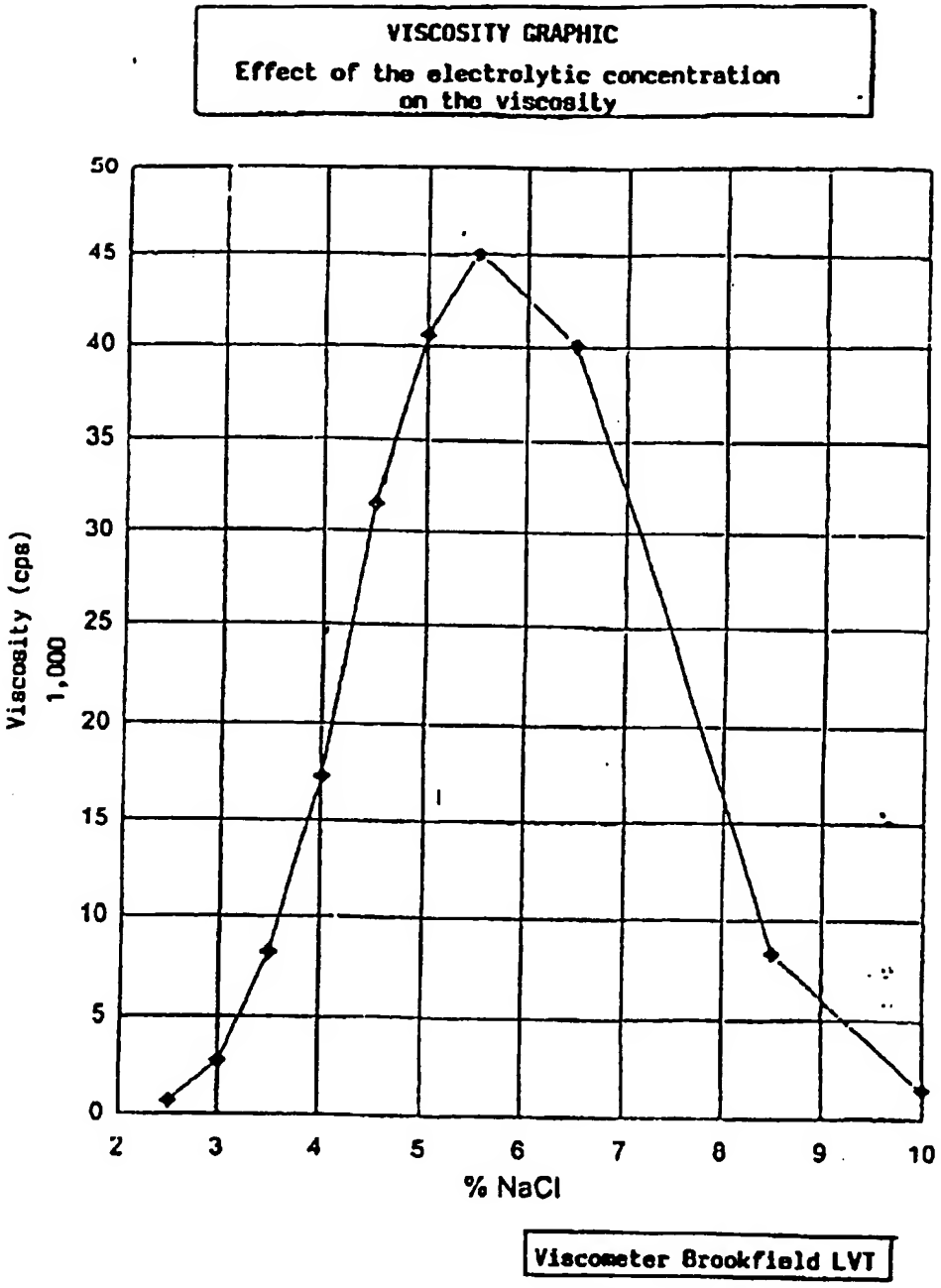

VISCOSITY GRAPHIC
Effect of the electrolytic concentration on the viscosity
Viscosity (cps) 1,000
50
45
40
35
30
25
20
15
10
5
0
2
3
4
5
6
7
8
9
10
% NaCl
Viscometer Brookfield LVT

Figure 1

C3738 (C)

VISCOSITY GRAPHIC

Effect of the lectrolytic concentration on the viscosity

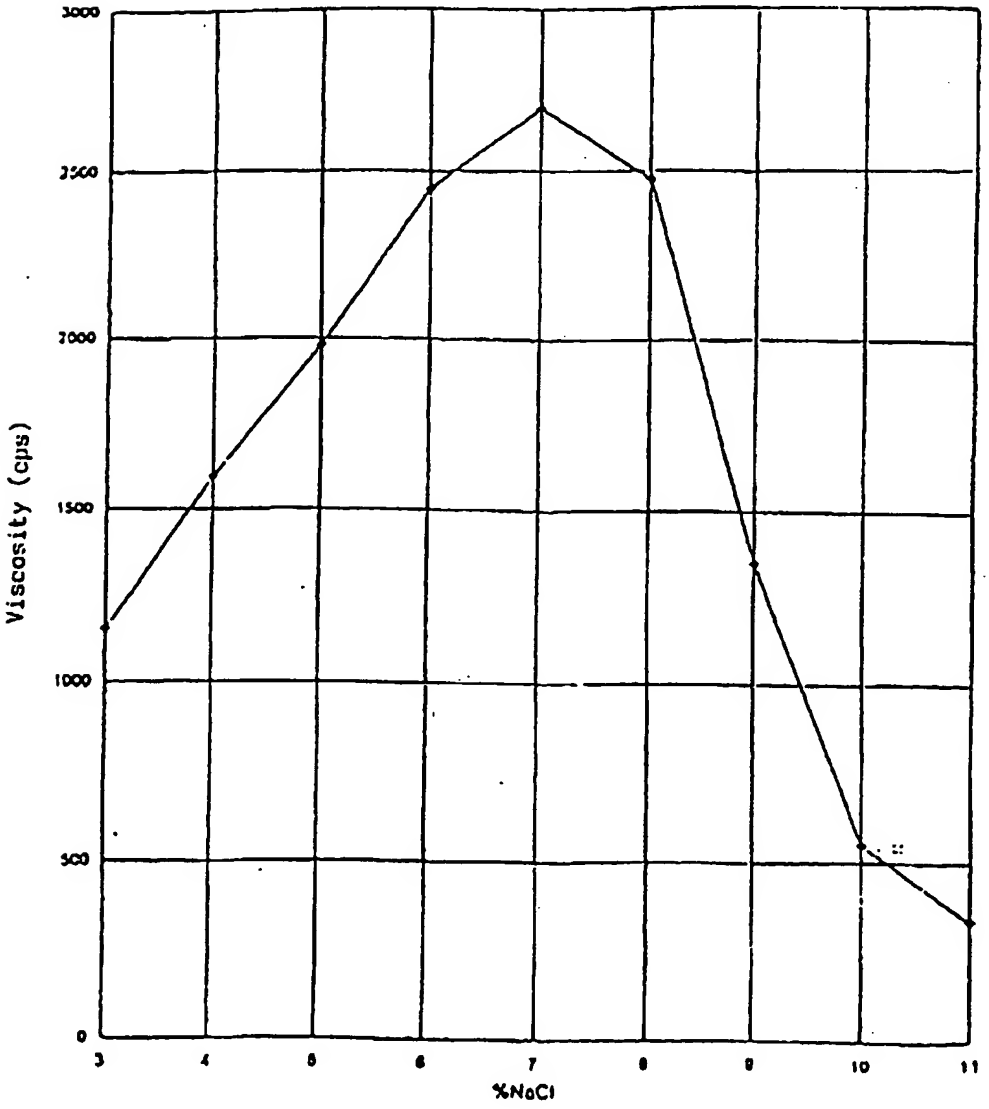


Figure 2

Viscometers
Speed: 22.6 cm^{-1}

C3738 (C)

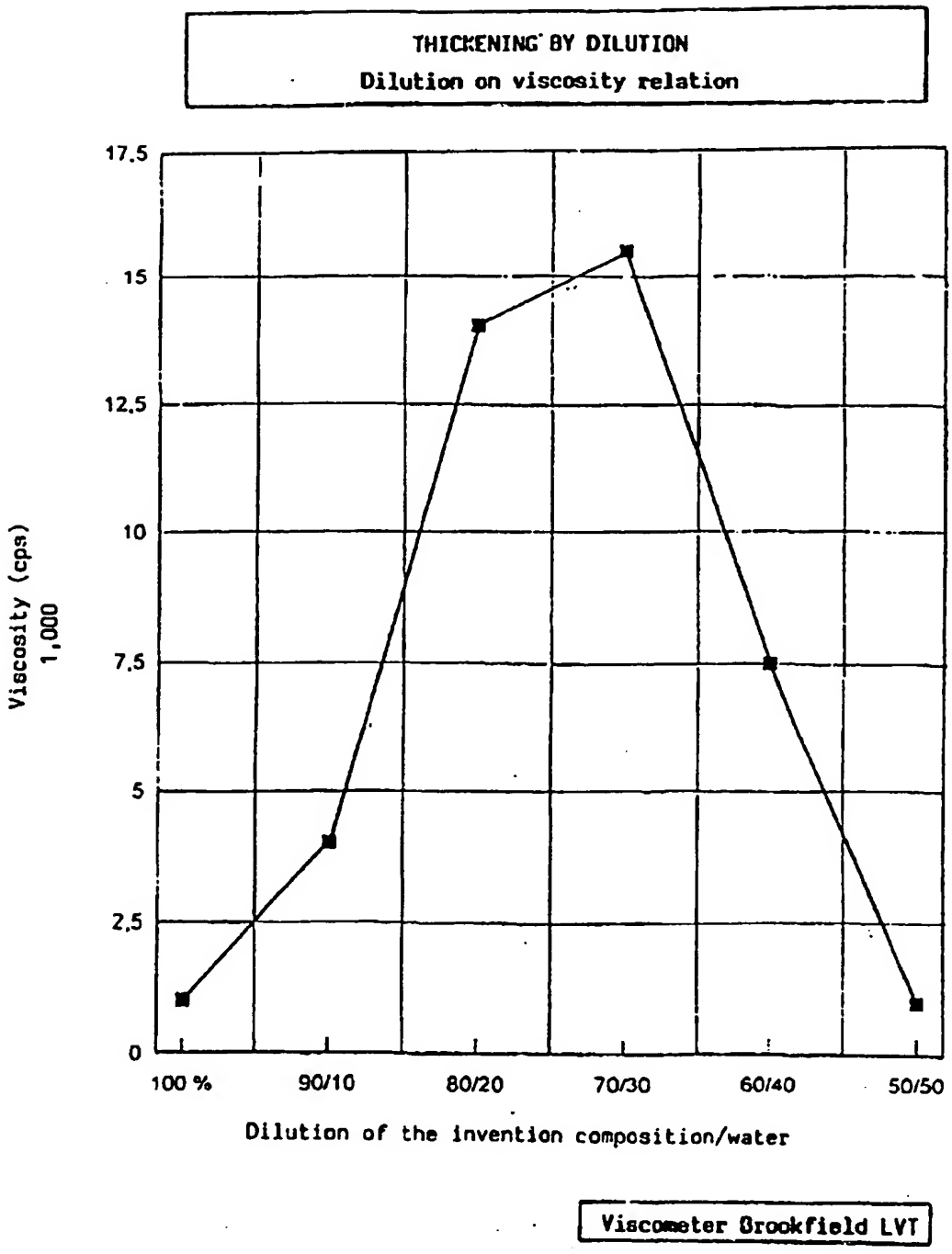


Figure 3

Potential for retaining the Liquid in the Sponge

Prior Art Formulation X Formulation of the Invention

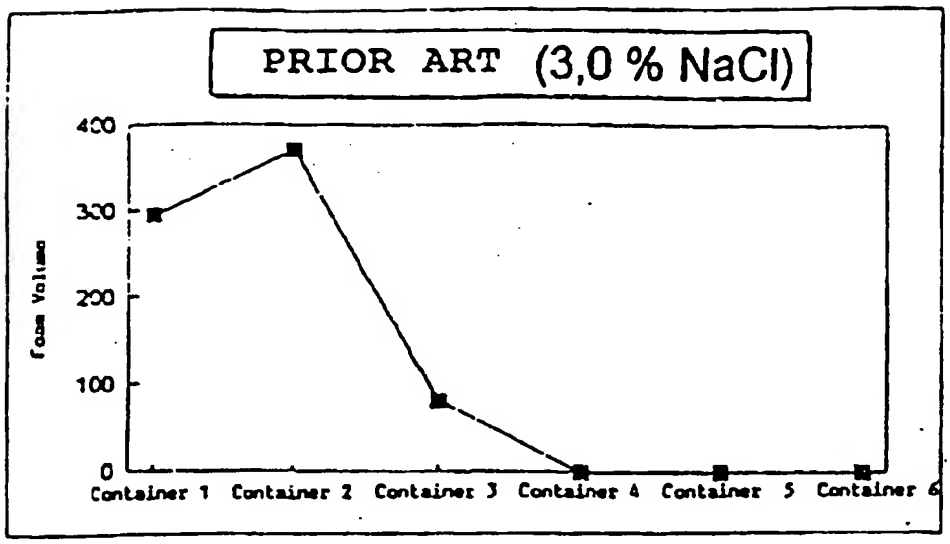
Temperature: 25°C

Prior Art (3,0% NaCl)							
	Repetitions						
Foam Volume	1	2	3	4	5	Average	DP
Container 1	225	300	300	350	300	295	40
Container 2	400	350	300	450	350	370	51
Container 3	50	50	100	150	50	80	40
Container 4	0	0	0	0	0	0	0
Container 5	0					0	0
Container 6	0					0	0
TOTAL	675	700	700	950	700	745	22

Invention (9,5% NaCl)							
	Repetitions						
Foam Volume	1	2	3	4	5	Average	DP
Container 1	100	200	200	300	125	185	70
Container 2	300	300	300	300	400	320	40
Container 3	350	400	250	200	250	290	73
Container 4	250	200	50	100	125	145	71
Container 5	100	25	0	50	100	55	40
Container 6	0	0	0	0	0	0	0
TOTAL	1100	1125	800	950	1000	995	49

Figure 4 (Cont'd overleaf)

C3738 (C)



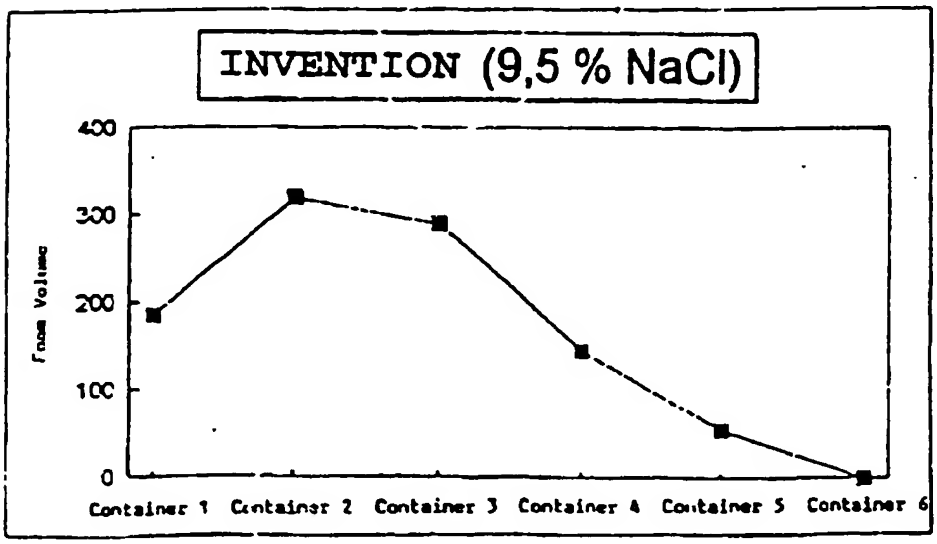


Figure 4 (Continuation)

Potential for retaining the Liquid in the Sponge

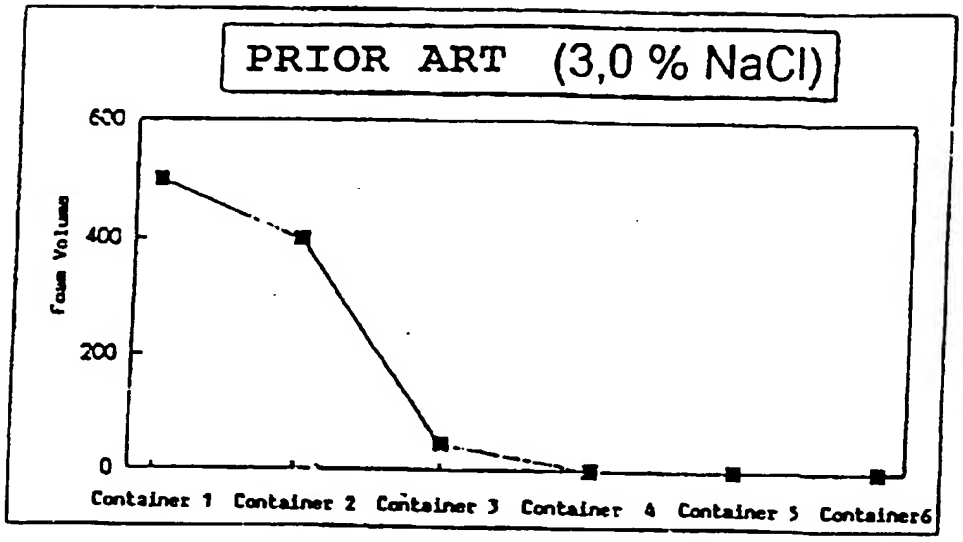
Prior Art Formulation X Formulation of the Invention

Temperature: 40°C

Prior Art (3,0% NaCl)							
	Repetitions						
Foam Volume	1	2	3	4	5	Average	DP
Container 1	500	450	500	500	550	500	32
Container 2	350	450	400	400	400	400	32
Container 3	50	50	25	50	50	45	10
Container 4	0	0	0	0	0	0	0
Container 5	0					0	0
Container 6	0					0	0
TOTAL	900	950	925	950	1000	945	12

Invention (9,5% NaCl)							
	Repetitions						
Foam Volume	1	2	3	4	5	Average	DP
Container 1	450	400	450	400	450	430	24
Container 2	400	400	400	450	400	410	20
Container 3	250	200	200	250	200	220	24
Container 4	25	25	25	25	25	25	0
Container 5	0	0	0	0	0	0	0
Container 6	0					0	0
TOTAL	1125	1025	1075	1125	1075	1085	11

Figure 5 (Cont'd overleaf)



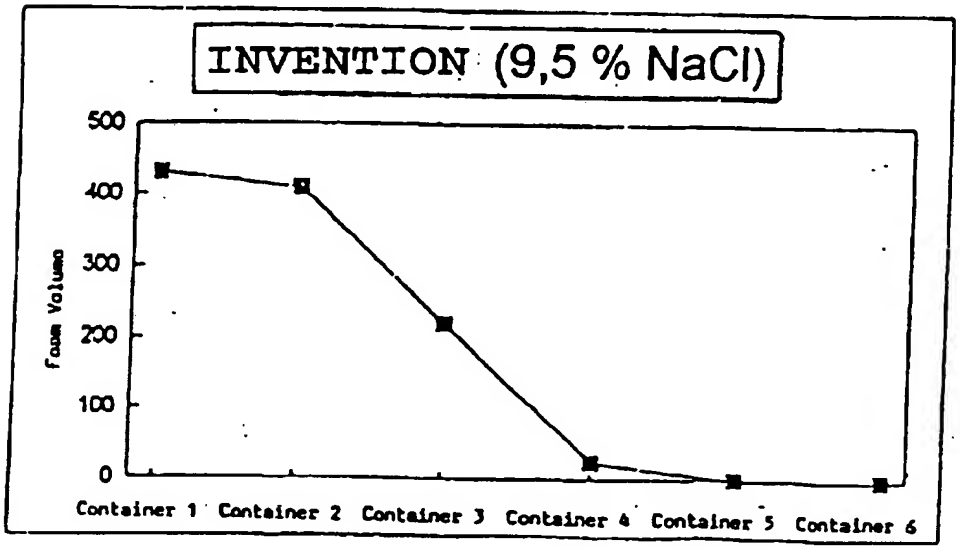


Figure 5 (Continuation)

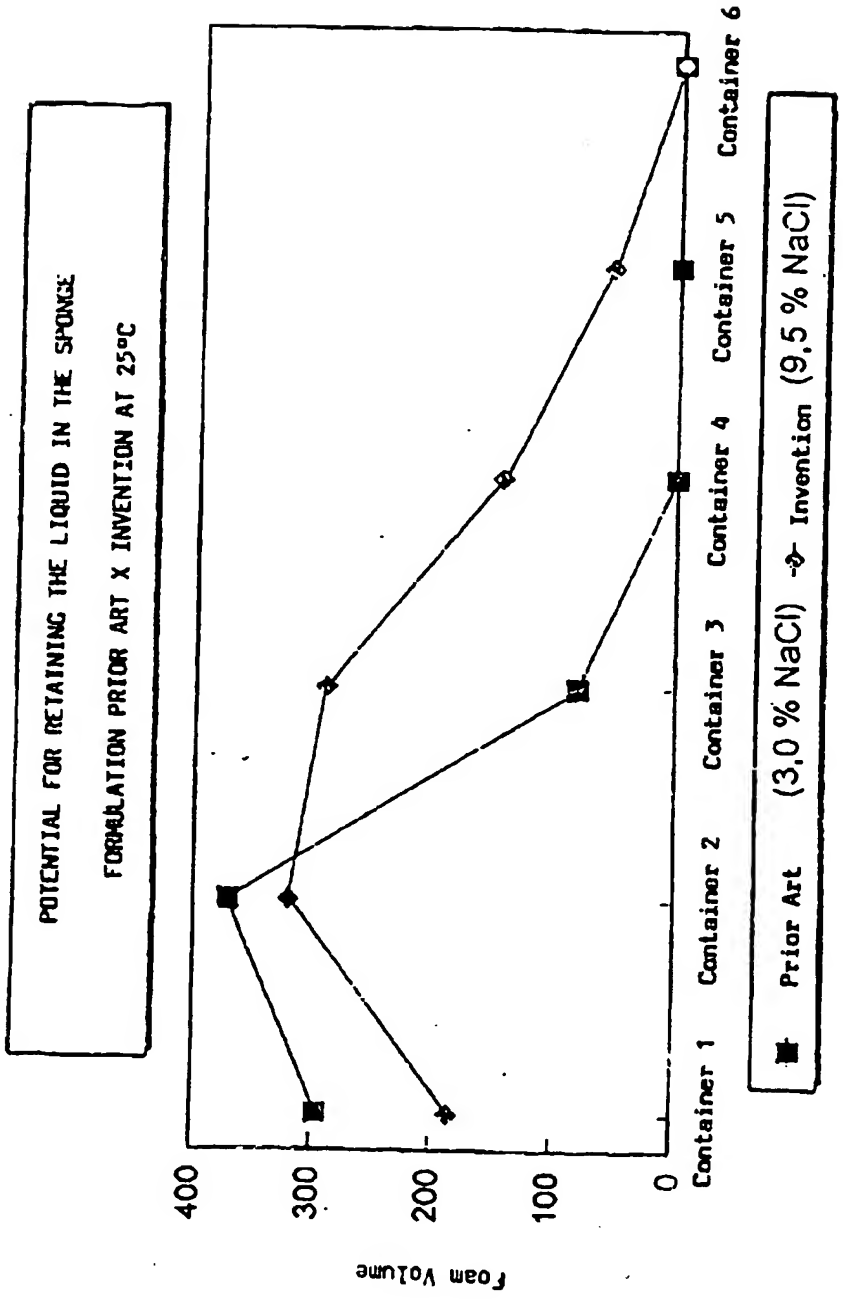

POTENTIAL FOR RETAINING THE LIQUID IN THE SPONGE
FORMULATION PRIOR ART X INVENTION AT 25°C
Foam Volume
400
300
200
100
0
Container 1
Container 2
Container 3
Container 4
Container 5
Container 6
Prior Art (3,0 % NaCl)
Invention (9,5 % NaCl)

Figure 6

C3738 (C)

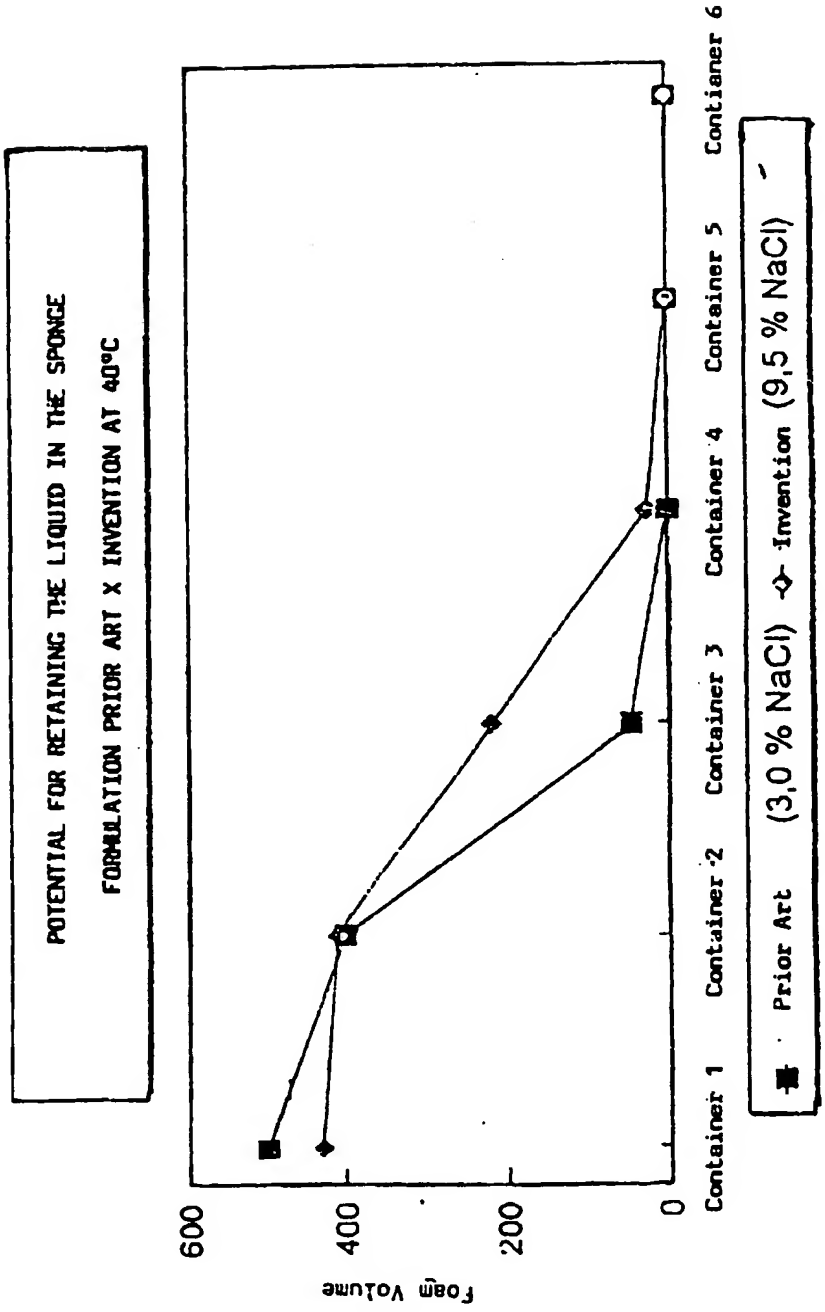


Figure 7

RINSING CAPACITY

Temperature: 40°C

Product	Number of Necessary Tests				
	Average	DP	Test 1	Test 2	Test 3
3.0% NaCl	10.33	0.47	10	11	10
9.5% NaCl	14.33	0.47	14	15	14
Formulation A	9.33	0.47	9	10	9
Formulation B	10.00	0.82	9	10	11
Formulation C	10.33	0.47	10	11	10

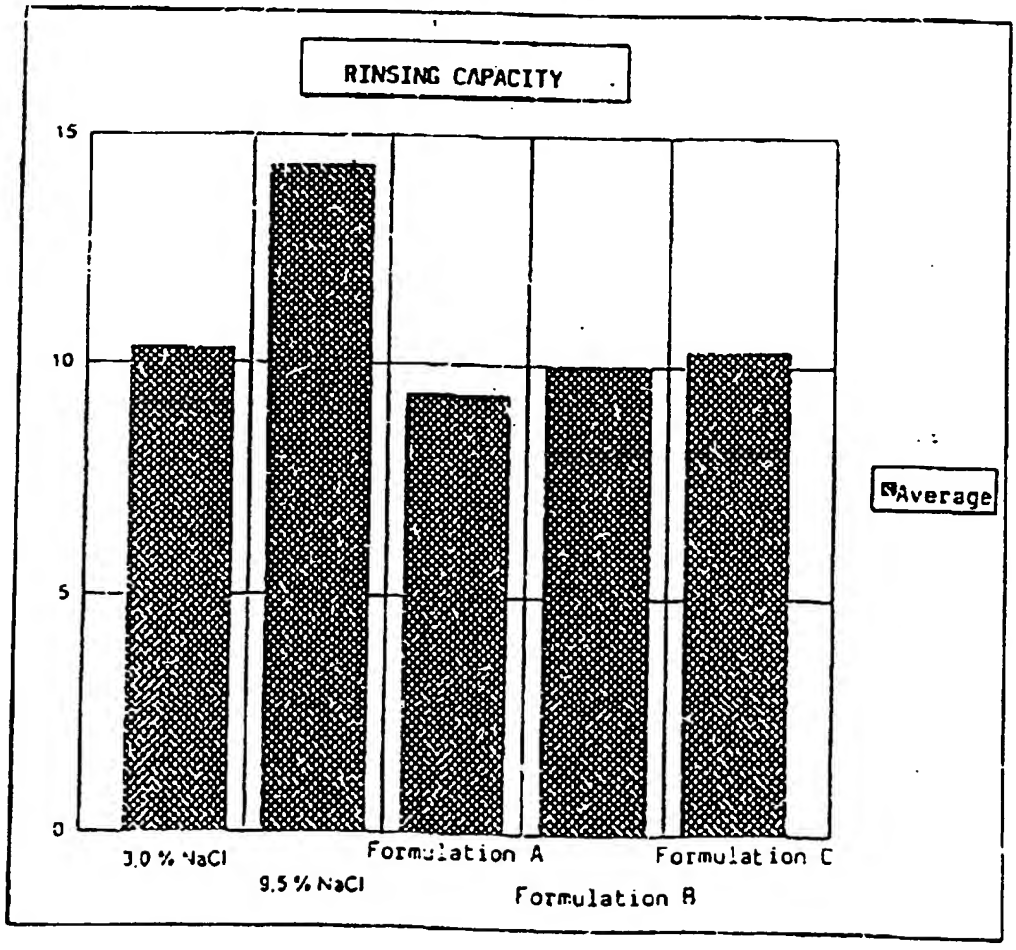


Figure 8

Potential for retaining the Liquid in the Sponge

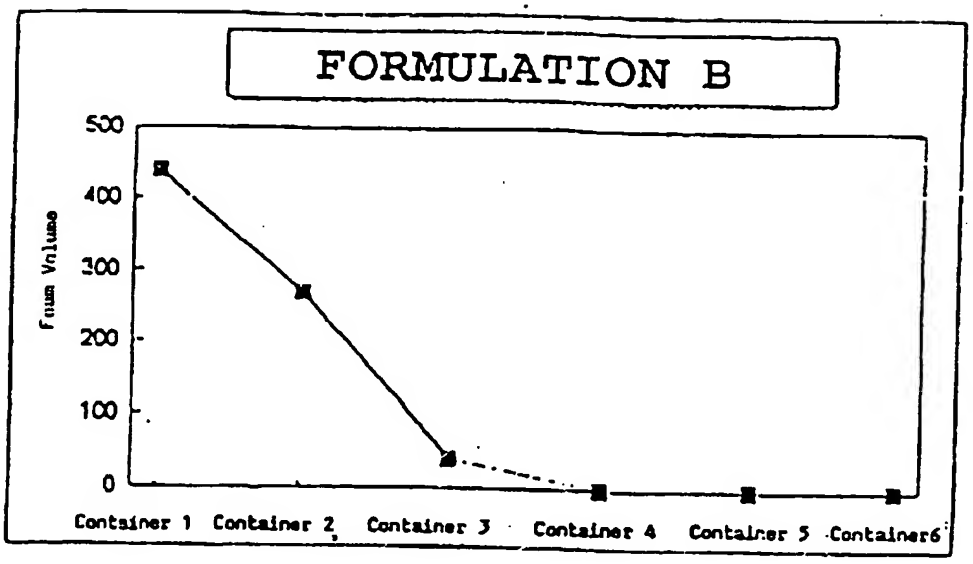
Products available on the Market

Temperature: 40°C

Formulation B							
Foam Volume	Repetitions					Average	DP
	1	2	3	4	5		
Container 1	400	450	450	450	450	440	20
Container 2	250	250	250	300	300	270	24
Container 3	50	50	50	25	25	40	12
Container 4	0	0	0	0	0	0	0
Container 5	0					0	0
Container 6	0					0	0
TOTAL	700	750	750	775	775	750	9

Formulation D							
Foam Volume	Repetitions					Average	DP
	1	2	3	4	5		
Container 1	250	250	225	300	300	265	30
Container 2	200	150	125	150	100	145	33
Container 3	0	0	0	0	0	0	0
Container 4	0					0	0
Container 5	0					0	0
Container 6	0					0	0
TOTAL	450	400	350	450	400	410	11

Figure 9 (Cont'd overleaf)



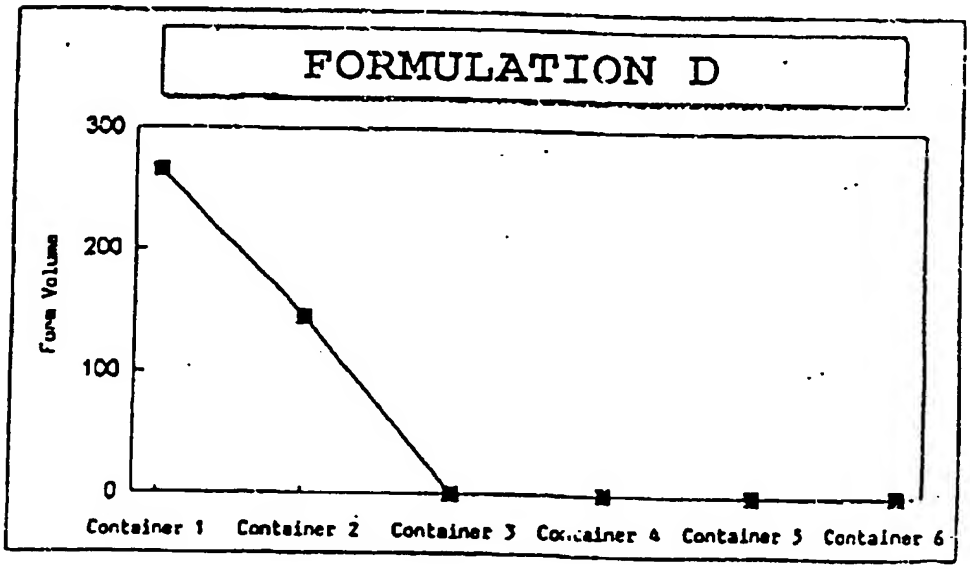


Figure 9 (Continuation)

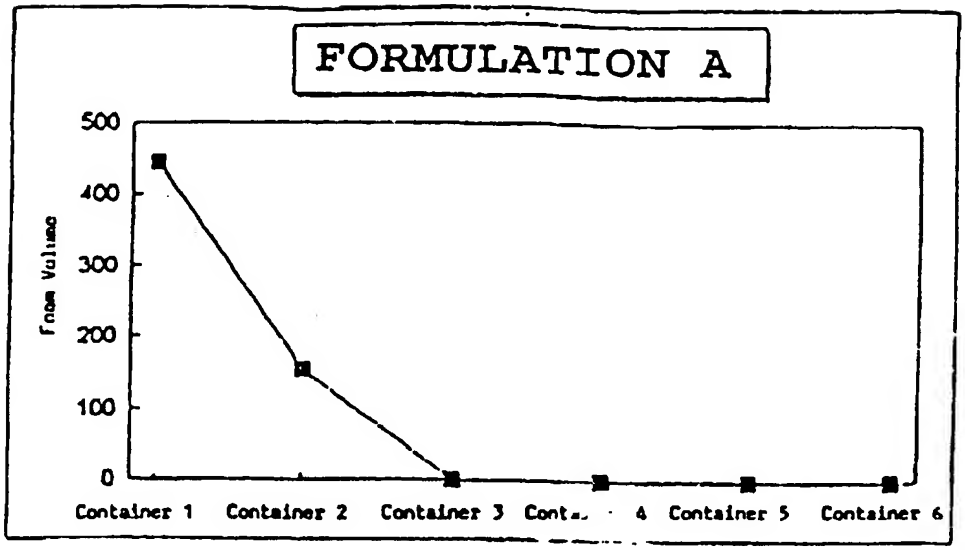
Potential for retaining Liquid in the Sponge Products available on the Market

Temperature: 40°C

Formulation A							
	Repetitions						
Foam Volume	1	2	3	4	5	Average	DP
Container 1	450	450	450	425	450	445	10
Container 2	175	150	150	150	150	155	10
Container 3	0	0	0	0	0	0	0
Container 4	0					0	0
Container 5	0					0	0
Container 6	0					0	0
TOTAL	625	600	600	575	600	600	3

Formulation E							
	Repetitions						
Foam Volume	1	2	3	4	5	Average	DP
Container 1	450	450	400	300	400	400	55
Container 2	150	100	100	200	150	140	37
Container 3	0	0	0	0	0	0	0
Container 4	0					0	0
Container 5	0					0	0
Container 6	0					0	0
TOTAL	600	550	500	500	550	540	15

Figure 10 (Cont'd overleaf)



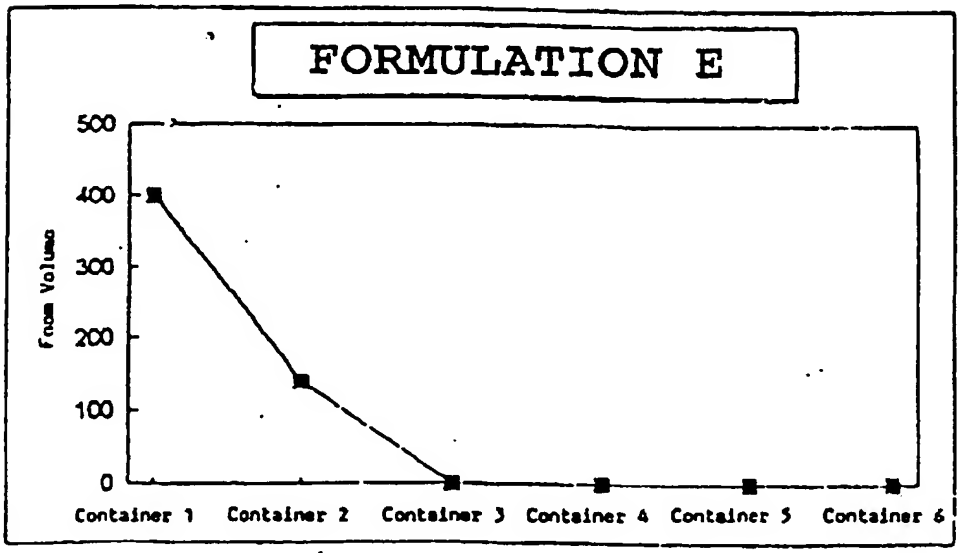


Figure 10 (Continuation)

Potential for retaining Liquid in the Sponge

Products available on the Market

Temperature: 40°C

Formulation G							
	Repetitions						
Foam Volume	1	2	3	4	5	Average	DP
Container 1	600	550	600	550	650	590	37
Container 2	0	0	0	0	0	0	0
Container 3	0					0	0
Container 4	0					0	0
Container 5	0					0	0
Container 6	0					0	0
TOTAL	600	550	600	550	650	590	6

Formulation C							
	Repetitions						
Foam Volume	1	2	3	4	5	Average	DP
Container 1	400	400	400	425	400	405	10
Container 2	150	150	100	100	125	125	22
Container 3	0	0	0	0	0	0	0
Container 4	0					0	0
Container 5	0					0	0
Container 6	0					0	0
TOTAL	550	550	500	525	525	530	5

Figure 11 (Cont/d overleaf)

Potential for retaining Liquid in the Sponge

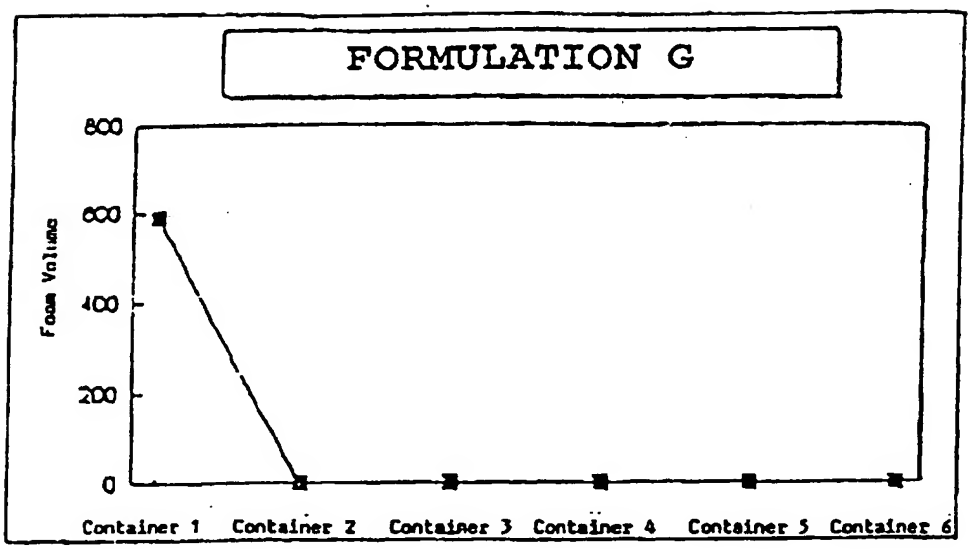
Products available on the Market

Temperature: 40°C

Formulation F							
	Repetitions						
Foam Volume	1	2	3	4	5	Average	DP
Container 1	600	700	700	650	600	650	45
Container 2	0	0	0	0	0	0	0
Container 3	0					0	0
Container 4	0					0	0
Container 5	0					0	0
Container 6	0					0	0
TOTAL	600	700	700	650	600	650	7

Figure 11 (Cont/d overleaf)

C3738 (C)



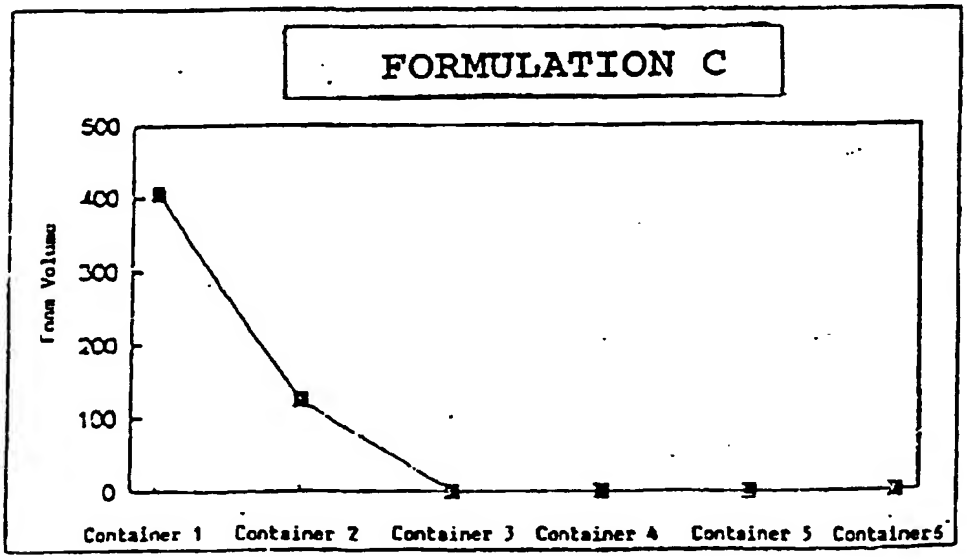


Figure 11 (Continuation)

C3738 (C)

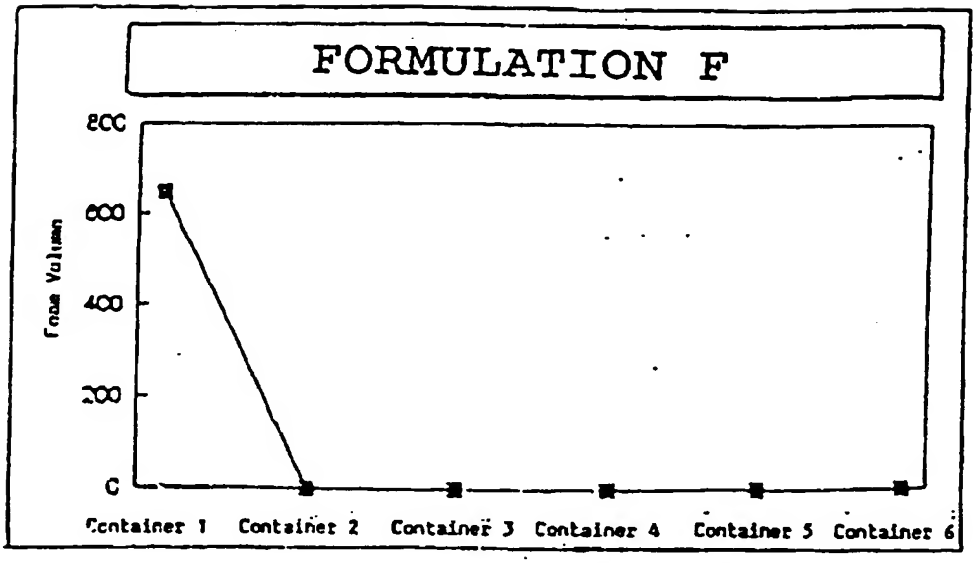


Figure 11 (Continuation)